REMARKS

Status of the claims

Claims 4 and 5 are allowed and claims 6-10, 14-35, and 38-45 have been cancelled without prejudice. After entry of the amendments contained herein, claims 1, 4, 5, 11-13, 36, 37, and 46-51 will be under consideration in this application.

In a telephone conversation with Applicant's undersigned representative on August 5, 2002, the Examiner indicated that claim 46 would be allowable if put in independent form. Claim 46 has been put in independent form and claims 47-51 have been made, directly or indirectly, dependent on it.

35 U.S.C. 112, first paragraph, rejections

(a) Claims 1, 11-13, 36-37, and 45-51 stand rejected on the grounds that the specification allegedly does not enable any person skilled in the art to which it pertains, or with which is most nearly connected, to make or use the invention commensurate in scope with the claims.

From the text on page 2, line 14, to page 8, line 2, of the Office Action, Applicant understands the Examiner's position to be that, because of the unpredictable effect of even conservative substitutions on protein structure and function, the instant specification would not enable one skilled in the art to make or use DNAs containing nucleic acid sequences encoding variants of the polypeptides with SEQ ID NOS: 1 or 3 (or functional fragments thereof) but with conservative substitutions. Applicant respectfully disagrees with this position since those skilled in the art are familiar with conservative amino acid substitutions and methods of testing polypeptides having conservative substitutions for co-stimulatory activity. Moreover, the specification provides examples of conservative substitutions (e.g., at page 4, lines 5-8) and methods of testing for co-stimulatory activity (e.g., page 24, lines 10-28, and Examples 3-5). Notwithstanding these considerations, in the interest of expediting prosecution of the instant application, Applicant has deleted the embodiments of amino acid sequences or functional fragments with one or more conservative substitutions from claim 1.

From the comments on page 2 of the Advisory Action of July 17, 2002, Applicant understands the Examiner's position to be that nucleic acid segments encoding functional

fragments, with or without conservative substitutions, vectors containing the segments, and cells containing the vectors are not enabled by the specification. While strongly disagreeing with this position, in the interest of expediting prosecution of the instant application, Applicant has cancelled claim 45. As indicated above, Applicant understands the Examiner's position to be that claim 46, as amended, and claims 47-51, now dependent on claim 46, to be enabled by the specification.

(b) Claims 1, 11-13, 36-37, 45, and 47-51 stand rejected as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention.

From the comments on page 8, line 8, to page 9, line 13, of the Office Action, Applicant understands the Examiner's position to be that the specification does not provide a description of a sufficient number of "homologs, variants, and mutants" containing one or more conservative substitutions to support the claims. Applicant respectfully submits that this rejection is moot in light of the amendment to claim 1.

From the comments on page 2 of the Advisory Action of July 17, 2002, Applicant understands the Examiner's position to be that nucleic acid segments encoding functional fragments, with or without conservative substitutions, vectors containing the segments, and cells containing the vectors lack adequate written description. While disagreeing with this position, in the interest of expediting prosecution of the instant application, Applicant has cancelled claim 45. As indicated above, Applicant understands the Examiner's position to be that claim 46, as amended, and claims 47-51, now dependent on claim 46, to be supported by adequate written description.

In view of the above considerations, Applicant respectfully requests that the rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

Attached is a marked-up version of the changes being made by the current amendment.

CONCLUSIONS

Applicant submits that the pending claims patentably define the invention. Applicant requests that the Examiner reconsider the rejections set forth in the Office Action, and permit the pending claims to pass to allowance.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's undersigned representative can be reached at the telephone number listed below.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 8/6/02

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Version with markings to show changes made

In the claims:

Claims 6-10, 14-35, and 38-45 have been cancelled.

Claim 1, 46, and 47 have been amended as follows:

1. (Twice amended) An isolated DNA comprising:

(a) a nucleic acid sequence that encodes a polypeptide with the ability to co-stimulate a T cell, wherein the polypeptide is [(i)] an amino acid sequence consisting of SEQ ID NO:1 or SEQ ID NO:3 [or (ii) the amino acid sequence but with one or more conservative substitutions]; or

(b) the complement of the nucleic acid sequence.

46. (Amended) [The DNA of claim 45, wherein] An isolated DNA comprising:

(a) a nucleic acid sequence that encodes [the functional fragment] a polypeptide consist[s]ing of (i) SEQ ID NO: 1 but lacking amino acid residues 1-22 of SEQ ID NO:1 or (ii) SEQ ID NO:3 but lacking amino acid residues 1-22 of SEQ ID NO:3; or

(b) the complement of the nucleic acid sequence.

47. (Amended) A vector comprising the DNA of claim [45] 46.